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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/039,300

01/02/2002

George Hsieh

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01/06/2004

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT

PAPER NUMBER

1751

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,300

Applicant(s)

HSIEH ET AL.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Election filed 10/30/2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 12-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

- Claims 1-30 are currently pending with the application. Applicant's election without traverse of Group-I, Claims 1-11 in Paper No. 2003.10.31 is acknowledged. Claims 12-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected groups, there being no allowable generic or linking claim.
- The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892 and/or the applicant has provided them on PTO-1449, they have not been considered.

Claim Rejections - 35 USC § 102
Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- Claims 1-2, 4-7 and 9-11 rejected under 35 U.S.C. 102(b) as being anticipated by Jiang et al (US Patent #6,011,307).

Jiang et al teach anisotropic conductive (ACP) interconnections comprising a plurality of magnetic particles aligned by a magnetic field forming electrical contact between the electronic components (Abstract). Jiang et al teach the composition of ACP to comprise either thermoset resins such as bisphenol-A/F for the cured adhesives and/or thermoplastics such as polyimide for the baked adhesives, and magnetically aligned

needle shaped particles or flakes of soft/hard ferromagnetic materials, whose direction and degree of alignment could be controlled by the magnetic field as determined by the requirements of the specific application. Jiang et al further teach the varying of the particle size of the ferromagnetic particles wherein a length of about 0.4 micron to 120 microns with a loading of about 10-90% of the adhesive material was found to be optimum (Col-2, Lines: 40-48; Col-3, Lines: 62-64; Col-4, Lines: 31-62; Col-8, Line 43 to Col-9, Line-56; Fig-15, Fig-16). The dimensions of the particles in the instant claim-10 would be inherent, because the width would be inherently smaller than the length and thickness of the flake would be less than either length or width in the ACP of Jiang et al. Curing of an epoxy by UV- light/radiation/heat would inherently depend on the polymer composition chosen for the ACP that would inherently meet the UV curing in instant claim-4. All the limitations of the instant claims are met.

The reference is anticipatory.

- Claims 1-3, 5 and 7, are rejected under 35 U.S.C. 102(b) as being anticipated by Ishibashi (JP 01-052023).

Ishibashi teaches the installation of a conductor across the electrodes comprising of ferromagnetic fibers of nickel dispersed in thermoplastic matrix of polyamide, the particles being magnetically aligned in desired direction in the aeolotropic film (Abstract). All the limitations of the instant claims are met.

The reference is anticipatory.

- Claims 1-2, 4-5, 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by IBM (NN86123197).

IBM teaches a process for making uniformly and tangentially aligned elliptical shaped hard magnetic particles in an organic binder by the application of magnetic field, use of photoresist composition in the binder and the curing of the composition by UV irradiation (Disclosure text). The electrically conductive path through a part of polymer based material and an apparatus comprising the composite in claim-1 would be inherent due to the conductive nature of particles. All the limitations of the instant claims are met.

The reference is anticipatory.

- Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al (US Patent #6,011,307) in view of Ishibashi (JP 01-052023) or IBM (NN86123197).

The disclosure by Jiang et al on the apparatus comprising the polymer/ferromagnetic composite adhesive is set forth as above.

Jiang et al do not disclose or suggestive of either polyamide or a photoresist material in the binder.

The disclosure by Ishibashi on the anisotropic conductor is set forth as above wherein the aligned ferromagnetic particles were dispersed in polyamide resin binder phase, in the analogous art of conductive adhesives for the electronic packaging.

The disclosure by IBM on the dispersion of aligned magnetic particles in a photoresist composition is set forth as above, wherein the conductivity would be obvious.

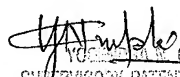
It would have been obvious for one with ordinary skill in the art to modify the composition of anisotropically conductive adhesive (ACP) for packaging by Jiang et al by choice of design, either by substituting the Jiang's polymer with a polyamide per the teachings of Ishibashi and/or the photoresist composition of IBM to benefit from such modifications, because both the teachings by Jiang et al and Ishibashi are in the related art of anisotropic conductive adhesives for electronic connections/package; and both Jiang et al and IBM teach the analogous dispersion of magnetic flakes/particles in the thermoplastic/thermoset polymers, while IBM further teaches benefits of organic binder containing UV treated photoresist material, that are the same materials in the composition of ACP for packaging per the limitations of the instant claims by the applicants, and with the expectation of reasonable success in arriving at the limitations of the instant claims by the applicants.

Conclusion

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Weld (US Patent# 5,773,322) teaches the dispersion of magnetically aligned particles in epoxy/elastomer; Appelt et al (US Patent 6,555,762) teach packaging adhesive comprising of magnetically aligned particles in epoxy/polyamides; Bae (US Patent # 5,545,367) teaches the dispersion of magnetically aligned inorganic and ferroelectric particles in acrylate terminated novolacs, and Wacom (JP 09-023049 A) teaches magnetically aligned magnetic particles in polymer as an interconnecting part.

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.30 - 17.00 hrs, Alt. Fri: 07.30-16.00 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.
- Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Kmv
December 22, 2003


YOGENDRA V. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1750